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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,708	10/01/2003	Yu Deng	CISCP835	8150

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EXAMINER	
SAWAGED, SARI S	

ART UNIT	PAPER NUMBER
4126	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/676,708	DENG ET AL.	
	Examiner	Art Unit	
	Sari Sawaged	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "102" has been used to designate all SONET ADM Networks in Figure 1. Even though each network is physically identical to the other, they are not one and the same. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: On page 8, line 21, the inventor uses the word "signal", the word should be replaced with the word "single".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 3, 5, 8, 9, 11, 12, 14, 17, 18, 19, 23, 24, 25, 27, 28, 30, 33, 34, 35, 38, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shai et al. (hereinafter referred to as Shai) (EP 0902590) in view of Verscheure et al. (hereinafter referred to as Verscheure) (Joint Impact of MPEG-2 Encoding Rate and ATM Cell Losses on Video Quality) in further view of Qureshi et al. (hereinafter referred to as Qureshi) (Generic framing procedure).

5. *Claim 1 states "A method for transmitting a serial video data stream by employing a hierarchical digital transmission standard, said method comprising: segmenting said serial video data stream into a sequence of horizontal scan lines; encapsulating said horizontal scan lines within GFP packets; and mapping said GFP packets into a digital signal in accordance with said hierarchical digital transmission standard."*

6. Regarding claims 1, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*.

Shai fails to disclose segmenting the serial video stream into a sequence of "horizontal lines" specifically.

Verscheure, from the same or a similar art, discloses that the structure of an MPEG-2 video frame is comprised of segmented slices (horizontal lines of compressed video) (See Verscheure Page 72 MPEG-2 Backgrounder first paragraph). Verscheure also discloses that MPEG-2 is segmented into variable length Packetized Elementary Stream packets and then subdivided into fixed length TS packets. The Packetized Elementary Stream packets are made up of the horizontal slices of an MPEG-2 frame. The examiner understands Verscheure disclosure to mean segmenting video into horizontal slices before encapsulation within TS packets. (See page 72, MPEG backgrounder second paragraph and Figure 1).

Neither Shai nor Verscheure disclose segmenting uncompressed video streams (SDI) into a sequence of horizontal scan lines, specifically, but video needs to be segmented before encapsulation. Verscheure showed that segmenting compressed MPEG-2 video into slices before encapsulation was a known method at the time. MPEG-2 is segmented into horizontal slices because these slices are the building blocks of MPEG-2 video frames, similarly, it would have been an obvious step to one of ordinary skill in the art at the time to segment SDI video into horizontal scan lines because horizontal scan lines are the building blocks of SDI video frames.

Shai discloses transmitting/receiving DVB/SDI video packets over a hierarchical network (ATM/SONET/SDH). Shai fails to disclose encapsulating the horizontal scan lines within "GFP" packets specifically. However, Qureshi discloses that GFP

encapsulation was a known method at the time. Qureshi also discloses several advantages to GFP encapsulation over other encapsulation methods at the time,

> "GFP minimizes the protocol-specific processing and protocol translation associated with SONET/SDH, and avoids the layer processing of ATM. Traditional encapsulation techniques such as Packet over SONET/SDH cannot guarantee bandwidth since the padding used inflates the frames size. GFP frame headers, on the other hand, are exactly the same size as the Preamble (which is dropped during encapsulation) which guarantees bandwidth. GFP also provides one uniform mechanism to adapt any payload type to any transport media. In other words, GFP results in network flexibility, efficiency and robustness."

It would have been obvious to one of ordinary skill at the time the invention was made to combine Shai's invention with GFP encapsulation due the advantages offered to the network by GFP encapsulation (as disclosed by Qureshi), such as, flexibility, efficiency, and robustness.

7. *Claim 2 states, "The method of claim 1 wherein said digital transmission standard comprises SONET"*

8. Regarding Claim 2, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*.

9. *Claim 3 states, "The method of claim 1 wherein said digital transmission standard comprises SDH."*

10. Regarding Claim 3, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*.

11. *Claim 5 states, "The method of claim 1 wherein said serial video data stream comprises an ANSI/SMPTE 259M-1997 serial video data stream."*

12. Regarding claim 5, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*.

13. *Claim 8 states, "A method for receiving a serial video data stream by employing a hierarchical digital transmission standard, said method comprising: demapping GFP frames from a signal formatted in accordance with said hierarchical digital transmission standard; and deencapsulating said GFP frames to extract horizontal scan lines of said serial video data stream."*

14. Regarding claim 8, Please see rejection for claim 1. Claim 8 is rejected on the same basis as claim 1.

15. *Claim 9 states, "The method of claim 8 further comprising: buffering said horizontal scan lines in a buffer; and recovering clock timing of said serial video data stream based on said horizontal scan lines."*

16. Regarding Claim 9, Shai discloses a FIFO buffer and an Adaptive Clock Recovery Method. The FIFO buffers the video data and the Adaptive Clock Recovery

Method recovers the clock timing *(See Column 27 Paragraph 0239 and Column 23 Paragraph 0201).*

17. Claim 11 states, "The method of claim 8 wherein said digital transmission standard comprises SONET."

18. Regarding claim 11, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*.

19. Claim 12 states, "The method of claim 8 wherein said digital transmission standard comprises SDH."

20. Regarding Claim 12, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*.

21. Claim 14 states, "The method of claim 8 wherein said serial video data stream comprises an ANSI/SMPTE 259M-1997 serial video data stream."

22. Regarding claim 14, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*.

23. Claim 17 states, "Apparatus for transmitting a serial video data stream by employing a hierarchical digital transmission

standard, said apparatus comprising: a scan line delineation block that segments said serial video data stream into a sequence of horizontal scan lines; a mapper that encapsulates said horizontal scan lines within GFP packets and maps said GFP packets into a digital signal in accordance with said hierarchical digital transmission standard."

24. Regarding claim 17, Please see the rejection for claim 1. Claim 17 is rejected on the same basis. A scan line delineation block, segmenter, or equivalent is needed to break up a video signal into horizontal scan lines before encapsulation. A mapper is inherent when mapping data within GFP packets into a digital signal in accordance with a hierarchical digital transmission standard.

25. Claim 18 states, "The apparatus of claim 17 wherein said digital transmission standard comprises SONET"

26. Regarding Claim 18, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*.

27. Claim 19 states, "The apparatus of claim 17 wherein said digital transmission standard comprises SDH."

28. Regarding Claim 19, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*.

29. Claim 23 states, "The apparatus of claim 17 wherein said serial video data stream comprises an ANSI/SMPTE 259M- 1997 serial video data stream."

30. Regarding Claim 23, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*.

31. Claim 24 states, "Apparatus for receiving a serial video data stream via a hierarchical digital transmission standard, said method comprising: a demapper that demaps GFP frames from a signal formatted in accordance with said hierarchical digital transmission standard and deencapsulates said GFP frames to extract horizontal scan lines of said serial video data stream; and a clock recovery system that recovers timing of said serial video stream."

32. Regarding claim 24, as discussed previously Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*. Shai fails to disclose encapsulating the horizontal scan lines within "GFP" packets specifically. However, Qureshi discloses that GFP encapsulation was a known method at the time. Qureshi also discloses several advantages to GFP encapsulation over other encapsulation methods at the time. It would have been obvious to one of ordinary skill at the time the invention was made to combine Shai's invention with horizontal scan line segmentation and GFP encapsulation due to the structure of video and the advantages offered to the network by GFP, such as, flexibility, efficiency, and robustness. An apparatus that is designed to receive GFP

packets over a hierarchical network would *inherently* have a demapper to demap GFP packets form a signal formatted in accordance with the hierarchical digital transmission standard and to deecapsulate the data from within the GFP packets. Shai discloses an Adaptive Clock Recovery Method that recovers the clock timing. *(See Column 27 Paragraph 0238,0239 and Column 23 Paragraph 0201).*

33. *Claim 25 states, "The apparatus of claim 24 further comprising: a buffer that stores said extracted horizontal scan lines, said serial video data stream being clocked out of said buffer in accordance with said recovered timing."*

34. Regarding claim 25, Shai discloses a buffer that stores said extracted horizontal scan lines, and serial video data stream being clocked out of said buffer in accordance with the recovered clock timing *(See Column 27 Paragraph 0238,0239 and Column 23 Paragraph 0201).*

35. *Claim 27 states, "The apparatus of claim 24 wherein said digital transmission standard comprises SONET."*

36. Regarding Claim 27, please see the rejection for claim 24. Claim 27 is rejected on the same basis.

37. *Claim 28 states, "The apparatus of claim 24 wherein said digital transmission standard comprises SDH."*

38. Regarding Claim 28, please see the rejection for claim 24. Claim 28 is rejected on the same basis.

39. Claim 30 states, "The apparatus of claim 24 wherein said serial video data stream comprises an ANSI/SMPTE 259M – 1997 serial video data stream."

40. Regarding claim 30, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*. An apparatus that is designed to receive GFP packets over a hierarchical network would *inherently* have a demapper to demap GFP packets form a signal formatted in accordance with the hierarchical digital transmission standard and to deecapsulate the data from within the GFP packets. Shai discloses an Adaptive Clock Recovery Method that recovers the clock timing. *(See Column 27 Paragraph 0238,0239 and Column 23 Paragraph 0201).*

41. Claim 33 states, "Apparatus for transmitting digital video information employing a hierarchical digital transmission standard, said apparatus comprising: a video interface configured to receive one of a serial digital video stream and a DVB-ASI packet stream; and a mapper that maps GFP packets that include data from either said digital video stream or said DVB-ASI packet stream into a digital signal in accordance with said digital transmission standard; and wherein in a first mode said video interface receives said serial digital video data stream and said GFP packets include digital video data and in a second mode said video interface receives DVB-ASI packets and said GFP packets include data from said DVB-ASI packet stream."

42. Regarding Claim 33, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*. Figure 7A shows a video interface for transmitting DVB-ASI and a serial digital stream over an ATM network. Shai discloses that the network can also be SONET/SDH. As discussed previously (see rejection for claim 1) GFP packetization would have been an obvious step to one of ordinary skill at the time the invention was made due to the advantages offered to the network by GFP, such as, flexibility, efficiency, and robustness (as disclosed by Qureshi).

43. *Claim 34 states, "The apparatus of claim 33 further comprising: a scan line delineation block that, during said first mode, segments said serial video data stream into a sequence of horizontal scan lines to be input to said mapper; an 8b/10b decoder that, during said second mode, decodes data of said DVB-ASI packet stream; and a 64b/65b encoder that, during said second mode, encodes output of said 8bI10b decoder, output of said 64bl65b encoder being input to said mapper."*

44. Regarding Claim 34, 8b/10b encoder/decoders, 64b/65b encoder/decoders and the use of comma insertion to regulate the timing of data streams were known methods that were used when mapping data within GFP packets as disclosed in the Non Patent Literature supplied by the applicant (ITU-T G.7041/Y.1303). It would have been obvious to one of ordinary skill at the time the invention was made to combine Shai's invention with GFP encapsulation due to the advantages offered to the network, such as, flexibility, efficiency, and robustness.

45. *Claim 35 states, "Apparatus for receiving digital video information employing a hierarchical digital transmission standard, said apparatus comprising: a demapper that demaps GFP packets from a digital signal in accordance with said hierarchical digital video standard, said GFP packets containing said digital video information; and a video interface that outputs either a serial video data stream or a stream of DVB-ASI packets responsive to said GFP packets; and wherein, in a first mode, said GFP packets comprise segments of said serial video data stream corresponding to horizontal scan lines and said video interface outputs said serial video data stream and, in a second mode, said GFP packets comprise information from said stream of DVB-ASI packets and said video interface outputs said stream of DVB-ASI packets."*

46. Regarding Claim 35, Shai discloses a method and apparatus where DVB-ASI/SDI video is transmitted/received via a hierarchical digital transmission standard (ATM/SONET/SDH) *(See Column 17 Paragraph 0153 and Column 18 Paragraph 0161)*. Figure 7B shows a video interface for receiving DVB-ASI and a serial digital stream over an ATM network. Shai discloses that the network can also be SONET/SDH. As discussed previously (see rejection for claim 1) GFP packetization would have been an obvious step to one of ordinary skill at the time the invention was made due to the advantages offered to the network by GFP, such as, flexibility, efficiency, and robustness (as disclosed by Qureshi).

47. *Claim 38 states, "Apparatus for transmitting a serial video data stream by employing a hierarchical digital transmission standard, said apparatus comprising: means for segmenting said serial video data stream into a sequence of horizontal scan lines; means for encapsulating said horizontal scan lines within GFP packets; and means for mapping said GFP packets into a digital signal in accordance with said hierarchical digital transmission standard."*

48. Regarding Claim 38, please see rejection for claim 1. Claim 38 is rejected on the same basis.

49. Claim 39 states, "Apparatus for receiving a serial video data stream by employing a hierarchical digital transmission standard, said apparatus comprising: means for demapping GFP frames from a signal formatted in accordance with said hierarchical digital transmission standard; and means for deencapsulating said GFP frames to extract horizontal scan lines of said serial video data stream."

50. Regarding Claim 39, please see rejection for claim 1. Claim 39 is rejected on the same basis.

51. Claims 4, 13, 20, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shai in view of Verscheure in further view of Qureshi in even further view of Agilent Technologies (An overview of ITU-T G.709).

52. *Claim 4 states, "The method of claim 1 wherein said digital transmission standard comprises G.709."*

53. Regarding claim 4, neither Shai nor Verscheure nor Qureshi disclose "a digital signal in accordance with the G.709 hierarchical digital transmission standard." However, Agilent Technologies discloses that the G.709 hierarchical digital transmission standard was a known standard at the time the invention was made and that it offered advantages over other hierarchical digital transmission standards. Agilent Technologies discloses that *G.709 improves on the SONET/SDH standard by managing optical channels in the optical domain (thus eliminating the extra cost of optical to electrical to optical conversions). G.709 also employs forward error correction to improve*

performance and enable longer optical spans (See page 2). It would have been obvious to combine Shai's invention with horizontal scan line segmentation, GFP encapsulation, and the G.709 hierarchical digital transmission standard due to the improvements that G.709 had to offer to the network such as, increased performance and optical spans (due to forward error correction) and lowered costs by managing optical channels in the optical domain (and eliminating optical to electrical to optical conversions).

54. Claim 13 states, "The method of claim 8 wherein said digital transmission standard comprises G.709."

55. Regarding Claim 13, Please see the rejection for claim 4. Claim 13 is rejected on the same basis as claim 4.

56. Claim 20 states, "The apparatus of claim 17 wherein said digital transmission standard comprises G.709."

57. Regarding claim 20, please see the rejection for claim 4. Claim 20 is rejected on the same basis as claim 4.

58. Claim 29 states, "The apparatus of claim 24 wherein said digital transmission standard comprises G.709."

59. Regarding claim 29, please see rejection for claim 4. Claim 29 is rejected on the same basis. An apparatus that is designed to receive GFP packets over a hierarchical network would *inherently* have a demapper to demap GFP packets from a signal formatted in accordance with the hierarchical digital transmission standard and to

deecapsulate the data from within the GFP packets. Shai discloses an Adaptive Clock Recovery Method that recovers the clock timing. *(See Column 27 Paragraph 0238,0239 and Column 23 Paragraph 0201).*

60. Claims 6, 7, 15, 16, 21, 22, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shai in view of Verscheure in further view of Qureshi in even further view of Olsson et al. (hereinafter referred to as Olsson) (Virtual Concatenations + LCAS).

61. Claim 6 states, "The method of claim 1 wherein mapping comprises: mapping said GFP packets into a VC-3-6v virtual concatenation."

62. Claim 7 states, "The method of claim 1 wherein mapping comprises: mapping said GFP packets into a VT3-6v virtual concatenation."

63. Regarding claims 6 and 7, neither Shai nor Verscheure nor Qureshi disclose using VC-3-6v or the VT3-6v virtual concatenations with a hierarchical digital transmission standard (SONET/SDH/G.709). However, virtual concatenations were used with SONET/SDH at the time. Olsson discloses several advantages to virtual concatenations, specifically, scalability, efficiency, compatibility, and resiliency. With the use of virtual concatenations, SONET pipes can be sized to match the desired data rate and avoid unnecessary waste. Virtually Concatenated channels are more easily routed through a network and eliminate stranded bandwidth. Virtual concatenations works across legacy networks that do not support large contiguous channels (See pages 2

and 3). It would have been obvious to combine Shai's invention with horizontal scan line segmentation, GFP encapsulation, and virtual concatenations due to the advantages offered to the network as disclosed by Olsson.

64. *Claim 15 states, "The method of claim 8 wherein demapping comprises: demapping said GFP packets from a VC-3-6v virtual concatenation."*

65. *Claim 16 states, "The method of claim 8 wherein demapping comprises: demapping said GFP packets from a VT3-6v virtual concatenation."*

66. Regarding claims 15 and 16, please see the rejection for claims 6 and 7. Claims 15 and 16 are rejected on the same basis as claims 6 and 7.

67. *Claim 21 states, "The apparatus of claim 17 wherein said mapper maps said GFP packets into a VC-3-6v virtual concatenation."*

68. *Claim 22 states, "The apparatus of claim 17 wherein said mapper maps said GFP packets into a VT3-6v virtual concatenation."*

69. Regarding Claims 21 and 22, Please see the rejection for claims 6 and 7. Claims 21 and 22 are rejected on the same basis as claims 6 and 7. An apparatus designed to transmit segmented video within GFP packets over a hierarchical network would inherently need a scan line delineation block or segmenter to break up a video signal into horizontal scan lines before encapsulation and a mapper to map data within GFP

packets into a digital signal in accordance with a hierarchical digital transmission standard.

70. *Claim 31 states, "The apparatus of claim 24 wherein said demapper demaps said GFP packets from a VC-3-6v virtual concatenation."*

71. *Claim 32 states, "The apparatus of claim 24 wherein said demapper demaps said GFP packets from a VT3-6v virtual concatenation."*

72. Regarding claims 31 and 32, please see the rejection for claims 6 and 7. Claims 31 and 32 are rejected on the same basis. An apparatus that is designed to receive GFP packets over a hierarchical network would *inherently* have a demapper to demap GFP packets form a signal formatted in accordance with the hierarchical digital transmission standard and to deecapsulate the data from within the GFP packets. Shai discloses an Adaptive Clock Recovery Method that recovers the clock timing. *(See Column 27 Paragraph 0238,0239 and Column 23 Paragraph 0201)*

73. Claims 10, 26, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shai in view of Verscheure in further view of Qureshi in even further view of Castel-Branco et al. (hereinafter referred to as Castel) (Clock Recovery for Circuit Emulation Services over ATM).

74. *Claim 10 states, "The method of claim 9 wherein recovering clock timing comprises: reading data out of said buffer in accordance with a locally generated clock; and varying frequency of said locally generated clock in accordance with occupancy of said buffer."*

75. Regarding Claim 10, Shai discloses a FIFO buffer and an Adaptive Clock Recovery Method and apparatus: The FIFO buffers the video data and the Adaptive Clock Recovery Method recovers the clock timing *(See Column 27 Paragraph 0239 and Column 23 Paragraph 0201).* Shai doesn't specifically disclose that the Adaptive Clock Recovery Method measures the buffer occupancy and adjusts the timing according to the measure occupancy of the buffer. However, Castel discloses that there were several Adaptive Clock Recovery methods known at the time that were used in packet switched networks. The FIFO level adaptive Clock Recovery method was one of these methods used at the time. The advantages of the adaptive clock recovery techniques were that they did not need explicit timing information between the source and the destination (saving bandwidth, time, and money). These methods were simple to implement and did not require timing network services. It would have been obvious to one of ordinary skill at the time the invention was made to combine Shai's invention with the FIFO Level Adaptive Clock Recovery Method due to its simplicity and bandwidth savings.

76. *Claim 26 states, "The apparatus of claim 25 wherein said clock recovery system comprises: a buffer occupancy measurement block that measures occupancy of said buffer, said timing being adjusted in accordance with said measured occupancy."*

77. Regarding claim 26, please see rejection for claim 10. Claim 26 is rejected on the same basis.

78. *Claim 36 states, "The apparatus of claim 35 further comprising: a clock recovery system that recovers timing of said serial video data stream during said first mode; a buffer that, during*

said first mode, stores horizontal scan lines of serial digital video data extracted from said GFP packets, said serial video data stream being clocked out of said buffer in accordance with said recovered timing; and a buffer occupancy measurement block that, during said first mode, measures occupancy of said buffer, said timing being adjusted in accordance with said measured occupancy."

79. Regarding claim 36, please see rejection for claim 10. Claim 36 is rejected on the same basis.

80. Claim 37 states, "The apparatus of claim 36 further comprising: a 64b/65 decoder that, during said second mode, decodes DVB-ASI data recovered from said GFP packets; a 8b/10b encoder that, during said second mode, outputs said stream of DVB-ASI packets responsive to output from said 64b/65 b decoder; and a clock tolerance compensation FIFO that, during said second mode, regulates timing of said stream of DVB-AS1 packets by inserting and removing comma characters."

81. Regarding claim 37, 8b/10b encoder/decoders, 64b/65b encoder/decoders and the use of comma insertion to regulate the timing of data streams were known methods that were used when mapping data within GFP packets as disclosed in the Non Patent Literature supplied by the applicant (ITU-T G.7041/Y.1303). It would have been obvious to one of ordinary skill at the time the invention was made to combine Shai's invention with GFP encapsulation due to the advantages offered to the network, such as, flexibility, efficiency, and robustness.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sari Sawaged whose telephone number is (571) 270-5085. The examiner can normally be reached on Mon-Thurs, 9:00AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doon Chow can be reached on (571) 272-7767. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DENNIS DOON CHOW
SUPERVISORY PATENT EXAMINER